

REMARKS

This is a full and timely response to the outstanding non-final Office Action mailed March 22, 2007. Reconsideration and allowance of the application and pending claims are respectfully requested.

I. Claim Rejections - 35 U.S.C. § 101

Claims 1-59 have been rejected under 35 U.S.C. § 101 as being drawn to non-statutory subject matter. In particular, the Office Action states that claims 1-59 lack a "useful, concrete, and tangible" result. Although Applicant disagrees with that statement, Applicant notes that the issue is moot given that each claim is explicitly directed to a statutory category explicitly identified in 35 U.S.C. § 101. Applicant discusses the laws/rules governing statutory subject matter determinations in the following.

In the Office Action, the Examiner cites the USPTO "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility," which were published in an Official Gazette notice ("the OG Notice") on November 2005. As an initial matter, Applicant notes for the record that the OG Notice upon which the Examiner relies is not binding authority as to the patentability of Applicant's claims. As expressed in the OG Notice:

These Guidelines do not constitute substantive rulemaking and hence do not have the force and effect of law. These Guidelines have been designed to assist USPTO personnel in analyzing claimed subject matter for compliance with substantive law. Rejections will be based upon the substantive law and it is these rejections which are appealable.

Consequently, any failure by USPTO personnel to follow the Guidelines is neither appealable nor petitionable.

Official Gazette Notice of November 22, 2005, Section I. Although the OG Notice does not comprise binding authority, Applicant discusses the OG Notice in the following in appreciation of the fact that the Examiner is bound to follow its guidelines. As the below analysis shows, Applicant's claims are proper under 35 U.S.C. § 101 as well as the guidelines described in the OG Notice.

The OG Notice first provides assistance to examiners in understanding recent court decisions that interpret the requirements of 35 U.S.C. § 101. In particular, the OG Notice explicitly acknowledges the breadth of what may qualify as a "patentable invention":

As the Supreme Court held, Congress chose the expansive language of 35 U.S.C. Sec. 101 so as to include "anything under the sun that is made by man." *Diamond v. Chakrabarty*, 447 U.S. 303, 308-09, 206 USPQ 193, 197 (1980). . . .

The plain and unambiguous meaning of section 101 is that any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may be patented if it meets the requirements for patentability set forth in Title 35, such as those found in sections 102, 103, and 112. The use of the expansive term "any" in section 101 represents Congress's intent not to place any restrictions on the subject matter for which a patent may be obtained beyond those specifically recited in section 101 and the other parts of Title 35 . . . Thus, it is improper to read into section 101 limitations as to the subject matter that may be patented where the legislative history does not indicate that Congress clearly intended such limitations.

Official Gazette Notice of November 22, 2005, Section IV.A.

Despite such inclusive language, the OG Notice indicates that there are limitations to what can be patented:

Federal courts have held that 35 U.S.C. Sec. 101 does have certain limits. First, the phrase "anything under the sun that is made by man" is limited by the text of 35 U.S.C. Sec. 101, meaning that one may only patent something that is a machine, manufacture, composition of matter or a process. . . .

The subject matter courts have found to be outside of, or exceptions to, the four statutory categories of invention is limited to abstract ideas, laws of nature and natural phenomena.

Official Gazette Notice of November 22, 2005, Section IV.A. Therefore, an invention is patentable under 35 U.S.C. § 101 as long as it falls within one of the explicit statutory categories identified in 35 U.S.C. § 101 and does not comprise one of an abstract idea, a law of nature, or a natural phenomenon (i.e., the three "judicial exceptions").

The OG Notice next provides explicit instructions to examiners as to how to determine whether a claim falls within a statutory category of 35 U.S.C. § 101:

To properly determine whether a claimed invention complies with the statutory invention requirements of 35 U.S.C. 101, USPTO personnel must first identify whether the claim falls within at least one of the four enumerated categories of patentable subject matter recited in section 101 (process, machine, manufacture or composition of matter).

Official Gazette Notice of November 22, 2005, Section IV.B. Later, the OG Notice provides explicit instructions to examiners as to how to determine whether a claim falls within one of the judicial exceptions:

Determining whether the claim falls within one of the four enumerated categories of patentable subject matter recited in 35 U.S.C. Sec. 101 (process, machine, manufacture or composition of matter) does not end the analysis because claims directed to nothing more than abstract ideas (such as mathematical algorithms), natural phenomena, and laws of nature are not eligible and therefore are excluded from patent protection. . .

. . . In evaluating whether a claim meets the requirements of section 101, the claim must be considered as a whole to determine whether it is for a particular application of an abstract idea, natural phenomenon, or law of nature, rather than for the abstract idea, natural phenomenon, or law of nature itself.

Official Gazette Notice of November 22, 2005, Section IV.C.

The OG Notice further states that a claim that relates to an abstract idea, natural phenomenon, or law of nature may still be patentable:

While abstract ideas, natural phenomena, and laws of nature are not eligible for patenting, methods and products employing abstract ideas, natural phenomena, and laws of nature to perform a real-world function may well be.

Official Gazette Notice of November 22, 2005, Section IV.C. On that issue, the OG Notice expresses that "practical applications" of the judicial exceptions can be patentable and

provides specific guidelines to aid examiners in determining whether a practical application of one of the judicial exceptions is claimed:

To satisfy section 101 requirements, the claim must be for a practical application of the Sec. 101 judicial exception, which can be identified in various ways:

- The claimed invention "transforms" an article or physical object to a different state or thing.
- The claimed invention otherwise produces a useful, concrete and tangible result, based on the factors discussed below.

Official Gazette Notice of November 22, 2005, Section IV.C.2. Therefore, if a claim is related to one of the judicial exceptions there must be an appropriate "transformation" or otherwise must be a "useful, concrete, and tangible result."

From the foregoing, it is apparent that the issue of whether a "useful, concrete, and tangible result" is claimed is *only* to be considered if: (1) the claimed invention concerns one of the judicial exceptions (i.e., abstract ideas, natural phenomena, and laws of nature) *and* (2) the claimed invention does not "transform" an article or physical object to a different state or thing.

In the present case, each of Applicant's remaining claims is explicitly directed to a category of invention identified in 35 U.S.C. § 101. Specifically, claims 1-15 are directed to a "method" which comprises a process, claims 15-25 and 36-41 are directed to a system which comprises one or both of a machine and manufacture, claims 26-35 are directed to

a "computer-readable memory" which comprises one or both of a machine and manufacture.

Furthermore, none of Applicant's claims comprise "an abstract idea, nature phenomenon, or law of nature".

First, it is difficult to understand how the Examiner can reasonably allege that Applicant's claims 16-25 and 36-41 are directed to "abstract ideas" as alleged in the Office Action when those claims explicitly recite actual hardware such as means for lighting, means for capturing images, cameras, lighting heads, and the like. If such hardware does not comprise patentable subject matter, then the great majority of existing U.S. patents describe unpatentable inventions. The same can be said about claims 26-35, as amended. Specifically, how can computer memory be considered an "abstract idea"? Clearly a physical thing cannot be a mere "idea".

Finally, with particular regard for method claims 1-15, claimed is not a mere "abstract idea." Instead, a particular application of a procedure is described. Specifically, described is a process in which a press-fit connection is inspected. The practical application is solving the problem of whether a connector pin is or is not correctly installed. Clearly, such an application cannot be reasonably considered an "abstract idea." Moreover, such an application cannot comprise mental steps or otherwise be practiced in one's mind given that the process includes actions such as "capturing an image".

In view of the above, Applicant respectfully submits that each of Applicant's remaining claims is directed to statutory subject matter as defined by 35 U.S.C. § 101 and therefore respectfully requests that the rejections be withdrawn.

II. Claim Rejections - 35 U.S.C. § 112, Second Paragraph

Claim 24 has been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicant regards as the invention.

In response to the rejection, Applicant has amended claim 24 to provide antecedent basis for the term "composite image." In view of that amendment, it is respectfully asserted that the claims define the invention in the manner required by 35 U.S.C. § 112. Accordingly, Applicant respectfully requests that the rejections to these claims be withdrawn.

III. Claim Rejections - 35 U.S.C. § 103(a)

Claims 1-2, 4-6, 16, 26, 36, 42, and 54 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over *Tomoaki* (JP 2001-280935). Applicant respectfully traverses.

As an initial matter, Applicant asserts that the rejection is per se improper for failing to address the majority of Applicant's claims. Although the Office Action explicitly addresses limitations contained in claims 1-6, the Office Action omits discussion of Applicant's other claims, claims 7-41, which do not merely contain limitations that are identical to those contained in claims 1-6. Through that omission, Applicant has been denied a full and fair hearing as required by MPEP 706.07. As stated in that section of the MPEP, "[t]he Examiner should never lose sight of the fact that in every case the applicant is entitled to a full and fair hearing, and that a clear issue between applicant

and examiner should be developed, if possible, before appeal." In view of this, Applicant submits that, if rejections are to be maintained against Applicant's claims in a new paper, that paper should be a *non-final* Office Action.

Turning to the merits of the claims, it is clear that the Tomoaki reference falls far short of teaching or suggesting the limitations contained in Applicant's claims 1-41 which remain in the application. Tomoaki describes a method of optically inspecting connector pins that have been press fit into a circuit board. In Tomoaki's method, light is shined on the pins from two different directions. *Tomoaki*, Abstract; Figure 1. The illumination scheme used by Tomoaki enables judgement of the configuration of the pins from shadows cast on the circuit board. *Tomoaki*, Abstract; Effect of the Invention; Means for Solving the Problem. More particularly, the tips of the shadows produced by the bi-directional illumination provides an indication of the orientation of the pin.

In view of the above, it is clear that Tomoaki does not teach or suggest Applicant's claimed inventions. Regarding claim 1, Tomoaki does not teach or suggest "identifying a feature in a captured image that may comprise a tip of the pin". Instead, Tomoaki identifies a shadow cast by a pin on a circuit board. Therefore, Tomoaki does not identify the pin tip itself. Tomoaki further does not teach or suggest "measuring characteristics of particular features on the identified pin tip". Again, Tomoaki measures shadows, not features of the pin. Furthermore, as acknowledged in the Office Action, Tomoaki does not teach or suggest "comparing the measured characteristics with at least one of stored reference values and each other". As for the allegation that it would have been obvious to compare measured characteristics, Applicant notes that the Examiner makes no attempt at supporting that allegation. As such, the obviousness

allegation is completely unsubstantiated and the rejection fails to state a prima facie case of obviousness. Finally, Tomoaki fails to teach or suggest "making a final decision as to whether the press-fit connection is acceptable based upon results of the comparing" given that no "comparing" is contemplated by Tomoaki.

In view of the above, Tomoaki clearly does not render claim 1, or its dependents, obvious. Turning to claims that depend from claim 1, Tomoaki is completely silent as to capturing images of a "flat end surface" or "chamfered surface" of a pin tip as recited in dependent claim 2. Furthermore, as can best be determined from the automated translation of the Japanese language document, no images are captured of the pin tips in Tomoaki's system because Tomoaki is interested in measuring aspects of shadows cast by the pins and not features of the pins themselves.

Regarding dependent claim 3, Tomoaki clearly says nothing whatsoever about "forming a composite image that comprises data from the captured image of the flat end surface and the captured image of the at least one chamfered surface". Simply stated, Tomoaki is silent about forming "composite" images.

Regarding dependent claim 4, Tomoaki fails to teach or suggest "illuminating the pin with light that is emitted nearly perpendicular to the circuit board and capturing an image of the at least one chamfered surface comprises illuminating the pin with light that is emitted nearly parallel to the circuit board". Tomoaki provides no indication of nearly perpendicular illumination or using nearly perpendicular illumination in conjunction with nearly parallel illumination.

Regarding dependent claims 5 and 6, the unwarranted and unsubstantiated statement that Applicant's claimed illumination angles are "obvious" amounts to a failure

to state a prima facie case of obviousness.

Regarding Applicant's claims 7-41, Applicant is unable to respond given that, as mentioned above, the Examiner chose to omit discussion of those claims. Applicant briefly discusses the other independent claims below, however, for the record.

Regarding independent claim 16, Tomoaki fails to teach or suggest each of "means for illuminating a pin tip from two distinct directions, a first direction suited to illuminate a flat end surface of the pin tip and a second direction suited to illuminate at least one chamfered surface of the pin tip", "means for capturing a first image while the pin tip is illuminated with light from the first direction and a second image while the pin is illuminated with light from the second direction", "means for measuring characteristics from image data of the captured of a flat end surface and at least one chamfered surface of the pin tip", and "means for comparing the measured characteristics with at least one of stored reference values and each other" for reasons described above.

Regarding independent claim 26, Tomoaki fails to teach or suggest each of "logic configured to identify a tip of a pin that has been press fit into a circuit board", "logic configured to measure characteristics of a flat end surface and a chamfered surface of an identified pin tip", "logic configured to compare measured characteristics with at least one of stored reference values and each other", and "logic configured to make a final decision as to whether the pin is properly installed based upon results of the comparing performed by the logic configured to compare" for reasons described above.

Regarding independent claim 36, Tomoaki fails to teach or suggest each of "a lighting head that is adapted to emit light in a direction nearly perpendicular to the circuit board and in a direction nearly parallel to the circuit board" and "an image analysis

system configured to identify a tip of a pin that has been press fit into the circuit board, to measure characteristics of a flat end surface and of a chamfered surface on the identified pin tip, to compare the measured characteristics with at least one of stored reference values and each other, and to make a final decision as to whether the pin is properly installed based upon results of the comparing" for reasons described above.

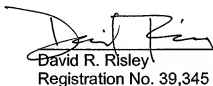
IV. Canceled Claims

Claims 42-59 have been canceled from the application without prejudice, waiver, or disclaimer. Applicant reserves the right to present these canceled claims, or variants thereof, in continuing applications to be filed subsequently.

CONCLUSION

Applicant respectfully submits that Applicant's pending claims are in condition for allowance. Favorable reconsideration and allowance of the present application and all pending claims are hereby courteously requested. If, in the opinion of the Examiner, a telephonic conference would expedite the examination of this matter, the Examiner is invited to call the undersigned attorney at (770) 933-9500.

Respectfully submitted,



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